

Group and Individual Diagnostic Characterization of the Training State of Combat Sport Athletes

Abstract of the Ph.D. thesis

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Introduction

Preparedness in sports terminology means the training state of the athlete. All coaches strive for the point when their athlete reaches the desired training state and want to determine which phase their athletes are in terms of competition form. Coaches can deduce it from the results of preliminary competitions or matches and from the activity carried out during trainings. They base the expected performance and sport result on it. But their judgement or opinion about the training state is not always consistent and objective. Such types of measurable parameters are required which sensitively and more accurately characterize the state of the athlete.

A complex training state can be approached along four components of performance: physical, conditional, physiological and psychological. Moreover, other viewpoints can be also considered which give the social, economic and organizational background to the formation of a state. All components cannot be discussed within the framework of this dissertation, but some of the functions, sensitive to changes in the state, are investigated.

There are several sensitive indices among the biological-physiological components, for example, biochemical data, but they cannot be considered as integrating factors regulating the whole activity. However, features suitable for diagnosing the state can be found in the sphere of psychological characteristics and skills. Thus, a chance occurs to approach the state with psycho-diagnostic methods, with the application of which the expected state of the athletes can be described, and with the help of which recommendations can be given to be used in practice. So this research consequently aims at elaborating a useful diagnostic system that is based on measurable data and practice.

Aims

The central aim of the work was to establish and present the diagnostics of training state, based on a psychological and psycho-physiological approach. During the exposition of the topic, some sub-aims were also set in conjunction with the appropriate aspects of training state. All of these latter ones are in relation to the activity of judokas. They are as follows:

- a comparison of male and female judokas

- a comparison of judo and taekwondo-do competitors
- a comparison of male and female groups of policemen who practice judo
- a comparison of judo, terror prevention and customs personnel groups
- an elaboration of diagnosing the training state of individuals
- testing individual training loads
- differences between positive and negative training state in individuals (n=184)

Hypothesis

Hypothesis groups were formed in accordance with seven research areas. They refer to real differences between men and women (gender problem), the two fighting strategies (judo and taekwondo), the effects of judo on the police profession, the two extremely challenging situations (individual and group) and to the above-mentioned individual diagnostics.

Methods

The different research/testing methods are not connected only by judo, but the usage of the same methodology as well.

They are as follows:

- Assertiveness questionnaire (AST, Nagykáldi)
assertiveness
- Competitive state and trait anxiety (CSAI-2, Martens, Burton)
somatic, cognitive anxiety and self-confidence
- Sport self-confidence Questionnaire (STCI, Vealey)
trait and state self-confidence in sportt
- State-trait anxiety Inventory (STAI, Spielberger)
trait trait and state anxiety
- General self-efficacy Scale (GSE, Schwarzer)
general self-efficacy

- Physical self-efficacy (PSE, Risckman et al.)
physical self-efficacy
- Dominance scale (FPI, Fahrenberg and Selg)
dominance
- Risk-taking scale (EPQ, Eysenck)
risk taking
- Athlete's self-evaluation questionnaire (Nagykáldi)
physical-psychomotor and motivational factors

Results

Gender differences

There is no significant difference between men and women in relation to anxiety (somatic, cognitive and general). These latter results correspond with the data of the special literature (Schmole, 1984). No deviation could be observed in level of self-confidence, dominance and risk taking either. No significant difference was found between female and male students of PE studies in self-confidence and dominancy (Nagykáldi, 2001). These results are supported by the results of our work as well. The very close values can result from the fact that both of the two genders can handle somatic and cognitive anxiety during competitions. The myth about women being more anxious and more afraid to win proved to be invalid. There is no difference between the competitors' self-evaluation scales in the factors evaluating motivation and physical condition.

Significantly higher values could be observed in fighting ability (assertiveness) in men. It has to be mentioned that it is verified that assertiveness negatively correlates with aggressive tendencies as, for example, impulsivity and psychoticism (Nagykáldi, 1998), which means that assertiveness is an individual characteristic of personality. Both general and physical self-efficacy are also higher in men, so these features also refer to gender differences. Efficacy can be evaluated as the actual manifestation of self-confidence. One unexpected finding was that there was an outstanding difference between men and women in the psychomotor factor of individual evaluation, also.

In summary, it can be said that significant psychological differences were shown with higher values in assertiveness, general and physical self-efficacy and psychomotor performance in men and with higher values of trait anxiety in women in the research carried out among adult Hungarian national-team judokas. But a very close, practically identical level of values were found in somatic, cognitive and state anxiety, in the two indices of self-confidence, dominance, risk taking and in the physical and motivational factors of self-evaluation.

Differences between fighting strategies

Two groups of different fighting strategies do not show significant differences in several factors. The level of dominance and risk taking is similar, and furthermore, the same thing can be observed for state anxiety, cognitive and somatic anxiety during the competitions, as well. This means that competitors in both sports can similarly and successfully get over their anxiety, even if the taekwondo athletes have higher values in trait anxiety. From among the 14 variables, 7 showed values differing from the average. Assertiveness, self-state and trait confidence in sport and physical self-efficacy is extremely characteristic of them. They surpass their partners in the motivational factor, in risk taking and in striving for dominance as well. These are their strong points: fighting ability, self-confidence and physical efficacy; but they are strongly motivated and have high risk-taking abilities and dominance as well. In the following 7 variables only some differences or similarities could be found. This does not mean that they no longer play an important role: they can supplement the situation, while in some situations they may have a more prominent role. Other profiles can be presumed to be observable with other athletes. Self-confidence is at the same level that counter-balances anxieties, as well as the actual manifestation of self-confidence and efficacy. They are on the same level even in the motivational and physical factors on the self-evaluation test.

Higher values can be observed mainly in assertiveness in the judo group. This result is also supported by previous researches (Nagykálldi, 2002), in which a ranking order was set up among combat sports. The highest values were received by the judokas and wrestlers, followed by the fencers and modern pentathletes (Bognár et al., 2005), followed by the karatekas.

Therefore, assertiveness is higher in contact-type sports, and a bit less with those where the strike has a greater role. This could be a reasonable explanation for the divergence in striking actions achieving the desired result – because the continuous contact is higher in judo than in taekwondo. During the same time span there is more confrontation in judo. Values of physical self-efficacy are significantly higher with the judo team, which might be connected to assertiveness as well.

Finally, the psychomotor factor of self-evaluation was significantly higher in judo than in taekwondo.

Effect of judo on the police profession

It was justified for both genders that groups following judo trainings have higher self-confidence and lower somatic anxiety values. The opposite held true as well: with lack of training the subjects' level of self-confidence was lower, and they were more afraid of physical damage during their work. In addition, judo proved to have a positive effect on trait anxiety in men and on cognitive anxiety in women. Similar results were found by Mitic et al., (2013), where male judokas had greater skill in controlling emotions than a similar-age recreation group.

Training had an important effect on the increase of dominance level with males, but there was no effect on women. On the contrary, assertiveness significantly increased through training for women, while there was no difference in this value with men. Risk taking significantly increased with police women, but not with policemen. Risk taking women doing judo became braver and more venturesome, and their fighting ability also increased. Altogether, it can be said that there was a positive increase in the level of features in several factors for women. We think that the favourable effects of judo are not fully exploited in police work.

The effects of extreme challenge on psychological variables

Judoka have extremely higher values in fighting ability than the members of the two armed groups (terror-prevention and customs personnel), which is true for dominance as well. But the judo group had significantly higher indices in the different anxiety scale data than the other two groups, except for somatic anxiety, which was very high for the terror prevention

group. Therefore, it can be said that self-confidence is significantly higher in the armed groups. These correlations can be traced back to the individual and group activities and to individual and public responsibility. The difference can be explained with the differing activities.

The armed groups showed very strict, pre-prepared, cooperation-based activity. Each member of the group is supported by the other members; they can entirely rely on each other and operate like a well-oiled cog, which decreases anxiety and increases self-confidence. We could see the increase of efficacy, as they strive for full security and safety in their work.

In the field of general and physical self-efficacy the terror-prevention squad showed significantly higher values than the other two groups. This emphasizes the question of efficacy and emphatically points out that great courage and determination is required in military actions. But a life-threatening situation can be decreased with effective execution. The level of risk taking was identical in all three groups. In spite of the varying extreme actions, all three groups undertake the risk equally, and although the challenge is different, there is no difference in the level of risk taking. This statement is confirmed by the fact that the applied test measured the general self-efficacy, which provided a good chance for comparison.

Profile of an Olympic champion

From among the 14 examined variables, 7 showed values differing from the standard. Assertiveness (excellent fighting ability), self-confident trait and state, and physical self-efficacy is characteristic for the tested Olympic champion. He surpassed his mates in motivation, risk taking and in striving for dominance. These are his strengths: first of all, fighting ability, self-confidence, and physical efficacy, and secondly, a strong level of motivation, risk taking and dominance. In the other seven variables only one scale-difference or similarity could be observed, which does not mean that they have no important roles later on, as they complete the picture, while in some situations they may have a more prominent role. Other profiles can be drawn from other competitors.

Effect of training load on level of performance

One can expect that a longer (8-week) training cycle, with the aim of establishing and developing abilities, has a condition-modifying effect on the athletes. The stronger series of physical training is accompanied with higher anxiety values, except in the case of cognitive anxiety. The overly-heavy workload evoked a certain sense of fear in the competitors. At the same time, it decreased general and physical efficacy; the belief that the athlete is able to execute an immediate high-level effort to fulfil the task. In this case it definitely decreased the demand for dominance, and led to less risk in this state. The psychomotor performance also decreased as a result of a lower level of concentration and coordination (technical level).

A comparison of different training states

In this test certain athletes' movement in their training state was studied before competitions. The sport performance itself subsequently validated the measured data. In a favourable condition the level of self-confidence, physical factors and psychomotor and motivational factors increased significantly, while that of physical efficacy, dominance and risk taking, to a lesser degree, increased in the tested competitors. At the same time, cognitive, somatic, state and trait anxiety decreased. Some characteristics, such as assertiveness and general self-efficacy, remained at the same level as they were in an unfavourable condition.

Conclusion

Based on the results of the methodological research regarding the test criteria, it can be stated that the applied tests are authentic and applicable in the diagnostic-type researches. So limited conclusions can be drawn from them.

Differences between the sexes could not be demonstrated in several parameters. However, in some respects, such as assertiveness, physical self-efficacy and general psychomotor performance, there are differences which suggest that they have to be taken into consideration in preparation for sport. In these cases, men are more developed than women, which means that the development of women in these aspects is worthwhile. Men are ahead of women, which means that women are worthy to be developed. Of course, this is the task of training-methodology.

Divergences were observed between the representatives of certain combat sports. Judoka had higher assertiveness, dominance and risk-taking than those doing taekwondo. It seems that these divergences are influenced by the different fighting strategies employed. This means that the higher level of the aforementioned contact-type fighting form characteristic of judo is intensified by a differing fighting strategy, that is to say, the contact-type fighting form characteristic of judo. It seems that this fighting strategy can be suggested for use in ability development in other combat sports as well. The positive effect of personality and skill development of judo could be unambiguously proven in the research carried out among police officers. The application of judo in training police is recommended.

If the extreme challenging situations are studied – based on the activity of judo, terror prevention and customs personnel groups – other important findings can be put forth. While the judo group significantly exceeds the values of the other two groups in assertiveness and dominance, it shows a significantly higher level of anxiety and a significantly lower level of self-confidence; which seem to show a correlation with the social and individual forms of activity. These conditions should be taken into consideration in the development of skills.

The individual analyses point to some important applications. Based on the researches it can be stated that there are significant opportunities for individual characterization. According to the measurements, the profile of certain competitors can be drawn, and based on this personal improvement trends can be modified. Similar to the previous fact, the effect of great physical load on an individual and on the modification of individual loads can also be characterized. Furthermore, it is considered important that the changes occurring in the physical state of the competitor can be more accurately determined with the application of diagnostic means.

The listed results and conclusions are applicable for coaches in their work.

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